

Exhibit A

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EMPLOYMENT

1983-1985 Scientific Officer, Biochemistry Division, National Institute for Medical Research, London, England

1985-1987 Research Scientist, Protein Engineering Group, Integrated Genetics, Framingham, Massachusetts

1987-1988 Staff Scientist I, Transgenic Group, Integrated Genetics

1988-1989 Staff Scientist II, Head of Molecular Biology, Transgenic Group, Integrated Genetics (now Genzyme)

1989-1995 Senior Staff Scientist, Protein Engineering Corporation (now Dyax)

1995-1996 Senior Staff Scientist, Gene Therapy, Genzyme Corporation, Framingham, Massachusetts

1996-1997 Associate Director, Gene Therapy, Genzyme Corporation

1997-1999 Director, Cancer Gene Therapy, Genzyme Molecular Oncology

1999-2000 Senior Director, Cancer Gene Therapy, Genzyme Molecular Oncology

2000-present Vice President, Applied Genomics, Genzyme Molecular Oncology

EDUCATION

1974-1978 B.Sc. (Biochemistry), Carleton University, Ottawa, Canada

1978-1983 Ph.D. (Protein Chemistry) University of Ottawa, Ottawa, Canada

AWARDS AND SCHOLARSHIPS RECEIVED

University of Ottawa Entrance Scholarship (1978-1980)

Canadian National Science and Engineering Research Council Postgraduate Scholarship (1979-1982)

OTHER DISTINCTIONS

Invited Speaker-1986 Penn State Symposium on Molecular Biology: The Nucleus

Invited Speaker-1988 Virginia Polytech Symposium on Large Animal Transgenics

Invited Speaker- 1989 AgBiotech Conference, Arlington, Virginia

Invited Speaker- 1997 NMHCC on Immunotherapy of Cancer , Bethesda, MD

Invited Speaker- 1998 CII conference on New Technologies and Applications of Vaccines, Palm Beach, Florida

Invited Speaker- 1998 IBC conference on Cancer Gene Therapy, London, UK

Invited Speaker- 1999 IIR conference on Clinical Evaluation of 2nd Generation Cancer Vaccines, London, UK

Invited Speaker-1999 IBC conference on Immunotherapy for cancer, San Diego

Invited Speaker- 2000 Sabin Institute Colloquium on Cancer Vaccines, Walker's Cay

Co-author of NIH RO1 Grant Application (No CA43186) entitled
"Mutagenesis of Papovavirus Transforming Proteins (awarded for the period 1986-1991)

PUBLICATIONS

Roberts, B. and Anderson, P.J. (1985). The purification and kinetic characterization of eel white muscle pyruvate kinase. *Comp. Biochem. Physiol.* (B) 80, 51-56.

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Smith, A.E., Markland, W., Cheng, S. and Roberts, B.L. (1985) Papovavirus transforming proteins. In: *The 12th Symposium for Comparative Research on Leukemia and Related Diseases*, pp. 76-93.

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Roberts, B.L., Richardson, W.D. and Smith, A.E. (1987). The effect of protein context on nuclear signal function. *Cell* 50, 465-475.

Markland, W., Smith, A.E. and Roberts, B.L. (1987). Signal-dependent translocation of simian virus 40 large-T antigen into rat liver nuclei in a cell-free system. *Molec. Cell. Biol.* 7, 4255-4265.

Rawle, F.C., O'Connell, K.A., Geib, R.W., Roberts, B. and Gooding, L.R. (1988). Fine mapping of an H-2KK restricted CTL epitope in SV40 T antigen using in-frame deletion mutants and a synthetic peptide. *J. Immunol.* 141, 2734-2739.

Dingwall, C., Robbins, J., Dilworth, S.M., Roberts, B. and Richardson, W.D. (1988). The nucleoplasmic nuclear location sequence is larger and more complex than that of SV40 large T antigen. *J. Cell Biol.* 107, 841-849.

Gordon, K., Vitale, J., Roberts, B., Monastersky, G., DiTullio, P. and Moore, G. (1989). Expression of foreign genes in the lactating mammary gland of transgenic animals. In: UCLA Symposia on Molecular and Cellular Biology-New Series 116, 55-60.

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Roberts, B.L. (1989). Nuclear location signal-mediated protein transport. B.B.A. 1008, 263-280.

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Roberts, B.L., Markland, W. and Ladner, R.C. (1996) Affinity maturation of proteins displayed on surface of M13 bacteriophage as major coat protein fusions. Methods in Enzymology 267: p. 68-82.

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Havenga, M., Fisher, R., Hoogerbrugge, P., Roberts, B., Valerio, D. and van Es, H.H.G. (1997) Development of safe and efficient retroviral vectors for Gaucher disease. *Gene Therapy* 4: p. 1393-1400.

Zhai, Y., Yang, J.C., Spiess, P., Nishimura, M.I., Overwijk, W.W., Roberts, B., Restifo, N.P., and Rosenberg, S.A. (1997) Cloning and characterization of the genes encoding the murine homologues of the human melanoma antigens MART1 and gp100. *Journal of Immunotherapy* 20: p. 15-25

Castleden, S.A., Chong, H., Garcia-Ribas, I., Melcher, A.A., Hutchinson, G., Roberts, B., Hart, I.R. and Vile, R.G. (1997) A family of bicistronic vectors to enhance both local and systemic antitumor effects of HSVtk or cytokine expression in a murine melanoma model. *Human Gene Therapy* 8: p. 2087-2102.

Rosenberg, S.A., Zhai, Y., Yang, J.C., Schwartzentruber, D.J., Hwu, P., Marincola, F.M., Topalian, S.L., Restifo, N.P., Seipp, C.A., Einhorn, J.H., Roberts, B. and White, D.E. (1998) Immunization of patients with metastatic melanoma using recombinant adenoviruses encoding the MART-1 or gp100 melanoma antigens. *Journal of the National Cancer Institute* 90: p. 1894-1900.

Kaplan, J.M., Yu, Q., Piraino, S.T., Pennington, S.E., Shankara, S., Woodworth, L.A. and Roberts, B.L. (1999) Induction of anti-tumor immunity using dendritic cells transduced with adenovirus vector encoding endogenous tumor associated antigens. *Journal of Immunology* 163: p. 699-707.

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Mohr, L., Shankara, S., Yoon, S.-K., Krohne, T.U., Geissler, M., Roberts, B., Blum, H.E. and Wands, J.R. (2000) Gene therapy of hepatocellular carcinoma in vitro and in vivo in nude mice by adenoviral transfer of the *Escherichia coli* purine nucleoside phosphorylase gene. *Hepatology* 31: p. 606-614

Linette, G.P., Shankara, S., Longerich, S., Yang, S., Doll, R., Nicolette, C., Preffer, F.I., Roberts, B.L. and Haluska, F.G. (2000) In vitro priming with adenovirus/gp100 antigen transduced dendritic cells reveals the epitope specificity of HLA-A201 restricted CD8+ T cells in patients with melanoma. *Journal of Immunology* 164: p. 3402-3412.

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Roberts, Bruce "Adenovirus and Other Viral Vaccines" in *Principles and Practice of the Biological Therapy of Cancer*. 3rd edition. S. A. Rosenberg, ed. Chapter 18.6.

Gnjatic, S., Nagata, Y., Jager, E., Stockert, E., Shankara, S., Roberts, B.L., Mazzara, G.P., Lee, S.Y., Dunbar, P.R., Dupont, B., Cerundolo, V., Ritter, G., Chen, Y.-T., Knuth, A. and Old, L.J. (2000) Strategy for monitoring T cell responses to NY-ESO-1 in patients with any HLA class I allele. P.N.A.S. (USA) 97: p. 10917-10922.

PATENTS

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley and R.B. Kent
Directed Evolution of Novel Binding Proteins
US Patent 5,837,500

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley and R.B. Kent
Directed Evolution of Novel Binding Proteins
US Patent 5,571,698

A.C. Ley, R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, and R.B. Kent
Engineered Human-Derived Kunitz Domains that Inhibit Human Neutrophil Elastase
US Patent 5,663,143

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley and R.B. Kent
Human Neutrophil Elastase and Human Cathepsin G Inhibitors (Filed 2/28/92)
Priority Date of March 1, 1991 (Filing Date of US 07/664,989)

R.C. Ladner, B.L. Roberts, A.C. Ley and R.B. Kent
Process for the Development of Binding Mini-Proteins (Filed 2/27/92)
Priority Date of March 1, 1991 (Filing Date of US 07/664,989)

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley, and R.B. Kent
Improved Epitope Displaying Phage (Filed 2/28/92)
Priority Date of March 1, 1991 (Filing Date of US 07/664,989)

Additional Filed Applications entitled:

Methods for Identifying Therapeutic Targets

Methods of Generating Antigen-Specific Cells and Uses Thereof

Compositions and Methods for Gene-Based Vaccines to Provoke T cell
Responses

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